

Specification Amendments

Page 13, lines 17-27:

There are many ways to represent information.

"Information transforms" (also called "mathematical transforms") are useful tools that preserve information between different representations. For example, the DNA sequence

~~ACGT AAGT AAAT AAAA~~

adenosinecytidineguanosinethymidine adenosineadenosineguanosinethymidine

adenosineadenosineadenosinethymidine adenosineadenosineadenosineadenosine

can be equivalently represented by four 0/1 sequencing ladders. The "A" ladder is:

1000 1100 1110 1111

The information contained in the "four letter sequence" is identical to that in the four 0/1 ladders. Indeed, this ladder representation is the basis of Sanger sequencing.

Page 22, lines 5-18:

An experiment was conducted that used synthesized CA-repeat oligonucleotide templates. The three templates contained (GT)_n, n = 1, 2, 3, and were 5' biotinylated for purification steps. The sequencing primer was fluorescently labeled (NED dye; PE

Biosystems, Foster City, CA) on the 5' end in order to estimate quantities related to the number of DNA strands. A poly-A tail was added for better sequencer detection. The complementary sequences used were:

~~————— 5'-NED-A₁₀-GTTTTCCCAGTCACGA 3'~~

~~————— 3'-CAAAAGGGTCAGTGCT-(GT)_n-CCAA Biotin 5'~~

5'-NED-A₁₀-guanosinethymidinethymidinethymidinethymidinecytidinecytidinecytidine
adenosineguanosinethymidinecytidineadenosinecytidineguanosineadenosine-3'

3'-cytidineadenosineadenosineadenosineadenosineguanosineguanosineguanosinethymidine
cytidineadenosineguanosinethymidineguanosinecytidinethymidine-(GT)_n-cytidinecytidine
adenosineadenosine-Biotin-5'

Extension from the sequencing primer forms a (CA)_n subsequence, followed by a G. The biotinylated "...GCT-(GT)_n-CCA..." template shall be loosely referred to herein by its complementary "(CA)_nG" name.

Page 23, lines 1-6:

The result of a sequencing reaction is a collection of 5' labeled molecules (n = 1,2,3):

~~5'-NED-A₁₀-GTTTTCCCAGTCACGA (CA) 3'~~

~~along with a full-length molecule labeled at both the 5' and 3' ends:~~

~~5'-NED-A₁₀-GTTTTCCCAGTCACGA-(CA)₃-G-JOE-3'~~

5'-NED-A₁₀-guanosinethymidinethymidinethymidinethymidinecytidinecytidinecytidine

adenosineguanosinethymidinecytidineadenosinecytidineguanosineadenosine-(CA)₃-3'

along with a full-length molecule labeled at both the 5' and 3' ends:

5'-NED-A₁₀-guanosinethymidinethymidinethymidinethymidinecytidinecytidinecytidine

adenosineguanosinethymidinecytidineadenosinecytidineguanosineadenosine-(CA)₃-G-JOE-3'